



MOS FET  
SK8603190L

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### Silicon N-channel MOS FET

For Load-switching / For DC-DC Converter

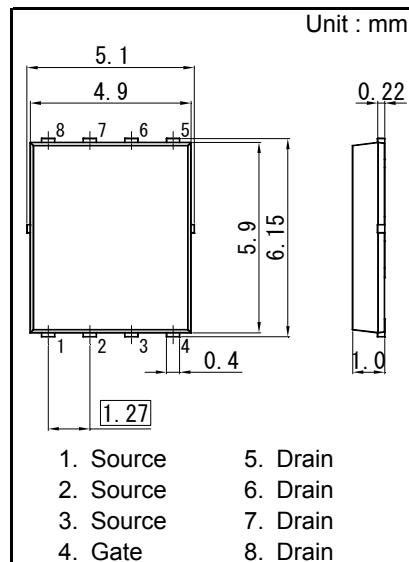
#### ■ Features

- Low Drain-source On-state Resistance :  $R_{DS(on)}$  typ = 10 mΩ (VGS = 4.5 V)
- Halogen-free / RoHS compliant  
(EU RoHS / UL-94 V-0 / MSL : Level 1 compliant)

#### ■ Marking Symbol : 19

#### ■ Packaging

Embossed type (Thermo-compression sealing) : 3 000 pcs / reel (standard)



#### ■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Drain to Source Voltage	VDS	30	V
Gate to Source Voltage	VGS	$\pm 20$	
Drain Current	ID	16	A
		12	
		19	
		48	
Total Power Dissipation	PD	2.7	W
		19	
Thermal Resistance	Channel to Ambient	45	$^\circ\text{C} / \text{W}$
	Channel to Case	6.6	
Channel Temperature	Tch	150	
Operating ambient temperature	Topr	-40 to +85	$^\circ\text{C}$
Storage Temperature Range	Tstg	-55 to +150	
Avalanche Current (Single pulse) <sup>*3</sup>	IAR	8	A
Avalanche Energy (Single pulse) <sup>*3</sup>	EAR	8	mJ

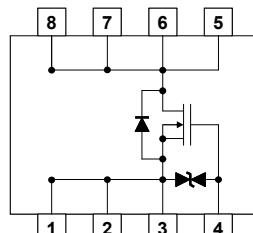
Note \*1 Device mounted on a glass-epoxy board in Figure 1

\*2 Pulse test: Ensure that the channel temperature does not exceed 150  $^\circ\text{C}$

\*3 VDD = 24 V, VGS = 10 to 0 V, L = 0.1 mH, Tch = 25  $^\circ\text{C}$  (initial)

Panasonic	HS08-F4-B
JEITA	SC-111BC
Code	—

#### Internal Connection



#### Pin Name

1. Source	5. Drain
2. Source	6. Drain
3. Source	7. Drain
4. Gate	8. Drain

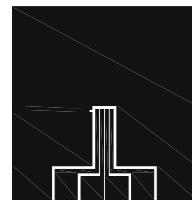


Figure 1 FR4 Glass-Epoxy Board  
25.4 mm × 25.4 mm × 0.8 mm



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■ Electrical Characteristics  $T_a = 25 \text{ }^{\circ}\text{C} \pm 3 \text{ }^{\circ}\text{C}$

Static Characteristics

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Drain-source Breakdown Voltage	VDSS	ID = 1 mA, VGS = 0 V	30			V
Zero Gate Voltage Drain Current	IDSS	VDS = 30 V, VGS = 0 V			10	$\mu\text{A}$
Gate-source Leakage Current	IGSS	VGS = $\pm 16$ V, VDS = 0 V			$\pm 10$	$\mu\text{A}$
Gate-source Threshold Voltage	V <sub>th</sub>	ID = 1.01 mA, VDS = 10 V	1		3	V
Drain-source On-state Resistance	RDS(on)1	ID = 8 A, VGS = 10 V		7	10	$\text{m}\Omega$
	RDS(on)2	ID = 8 A, VGS = 4.5 V		10	14	

Dynamic Characteristics

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Input Capacitance	C <sub>iss</sub>	VDS = 10 V, VGS = 0 V f = 1 MHz		780	1 092	$\text{pF}$
Output Capacitance	C <sub>oss</sub>			160	224	
Reverse Transfer Capacitance	C <sub>rss</sub>			61	98	
Turn-on Delay Time <sup>1</sup>	td(on)	VDD = 15 V, VGS = 0 to 10 V		7		ns
Rise Time <sup>1</sup>	tr	ID = 8 A		3		
Turn-off Delay Time <sup>1</sup>	td(off)	VDD = 15 V, VGS = 10 to 0 V		34		ns
Fall Time <sup>1</sup>	tf	ID = 8 A		4		
Total Gate Charge	Q <sub>g</sub>	VDD = 15 V, VGS = 0 to 4.5 V ID = 8 A		6.3		$\text{nC}$
Gate to Source Charge	Q <sub>gs</sub>			2.5		
Gate to Drain Charge	Q <sub>gd</sub>			2.1		
Gate resistance	rg	f = 5 MHz		1.2	3	$\Omega$

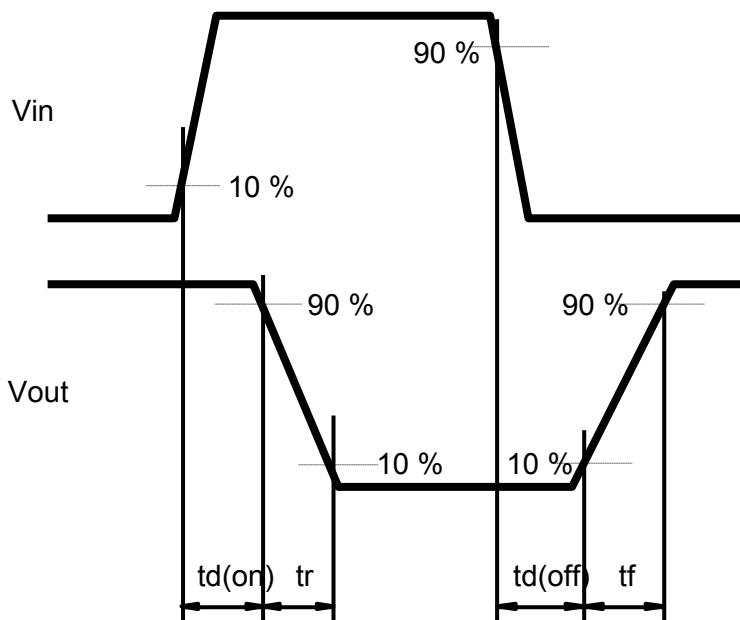
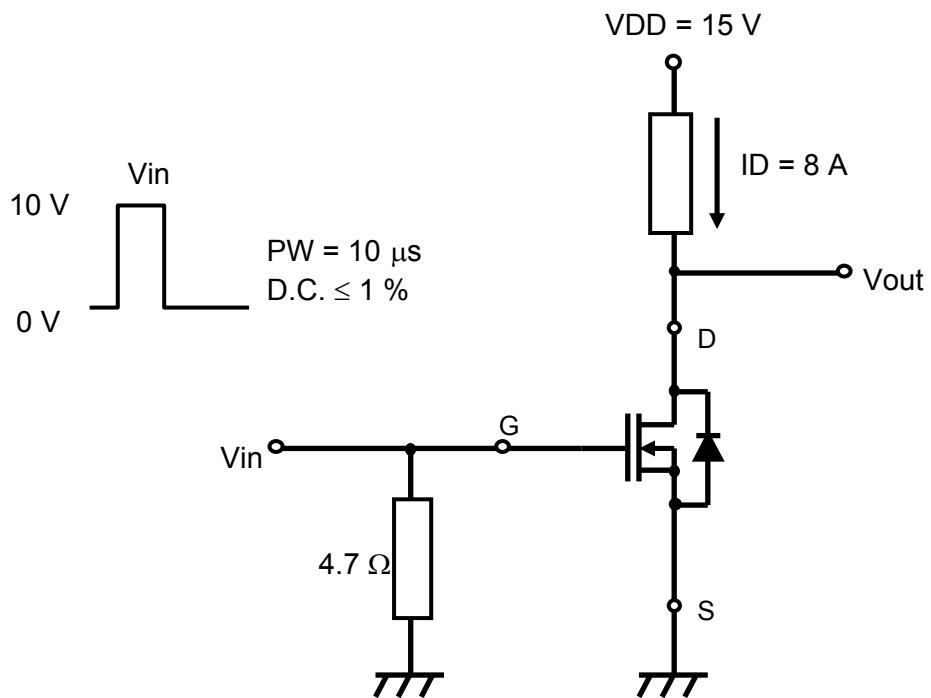
Body Diode Characteristic

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Diode Forward Voltage	V <sub>SD</sub>	IS = 8 A, VGS = 0 V		0.8	1.2	V

Note : 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 Measuring methods for transistors.

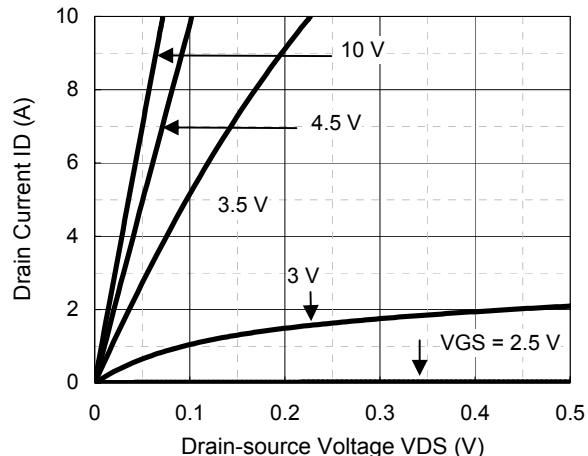
2. \*1 Measurement circuit for Turn-on Delay Time / Rise Time / Turn-off Delay Time / Fall Time

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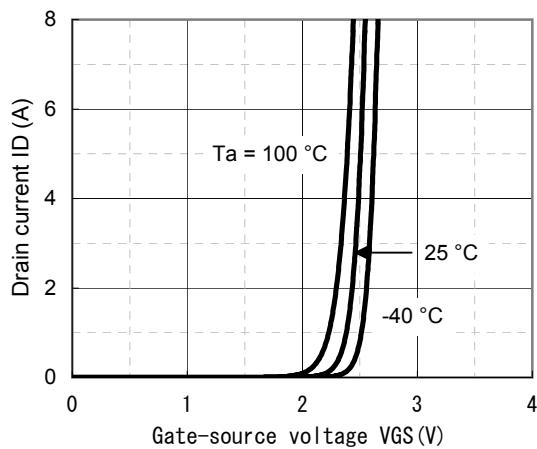


Technical Data ( reference )

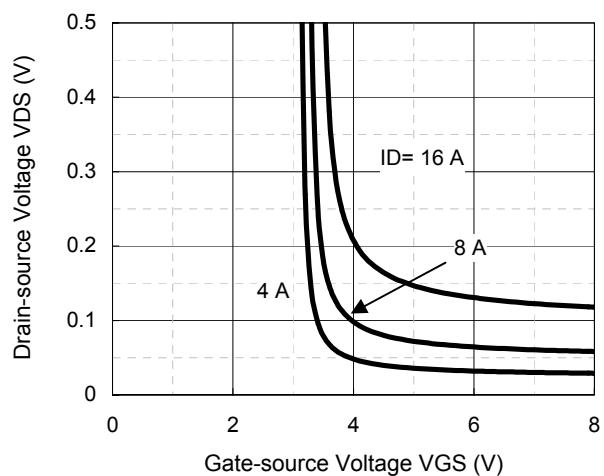
ID - VDS



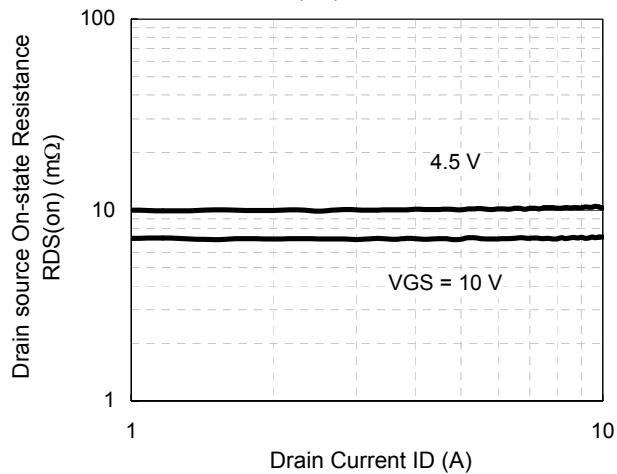
ID - VGS



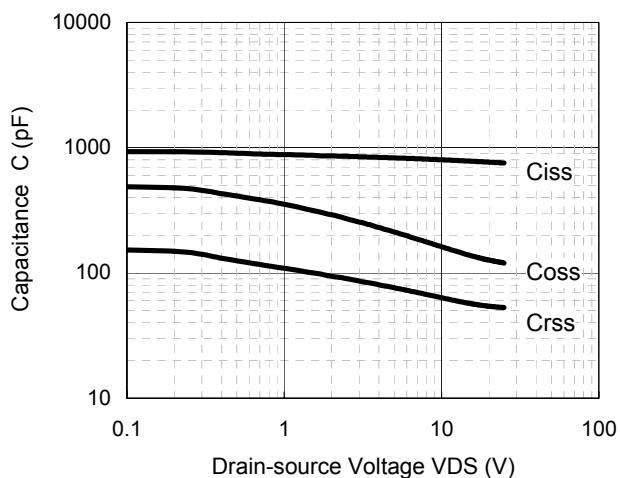
VDS - VGS



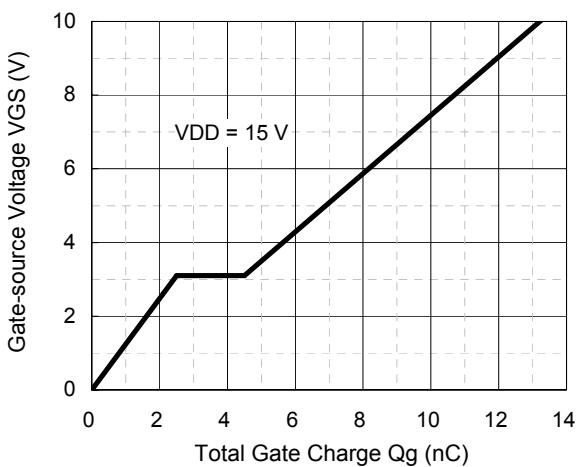
RDS(on) - ID



Capacitance - VDS

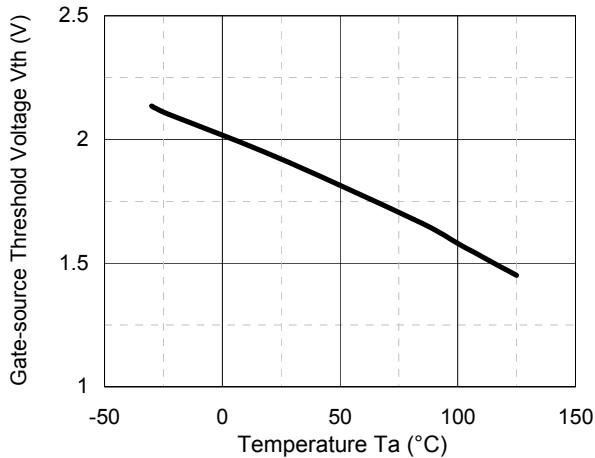


Dynamic Input/Output Characteristics

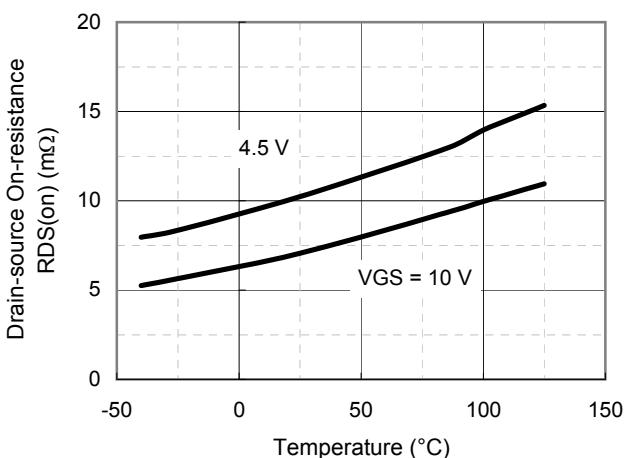


Technical Data ( reference )

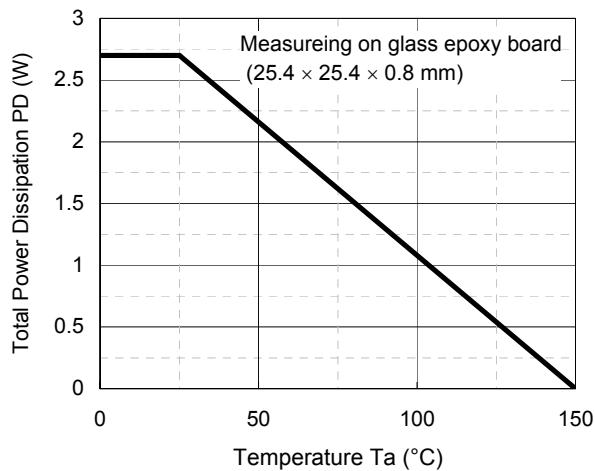
V<sub>th</sub> - Ta



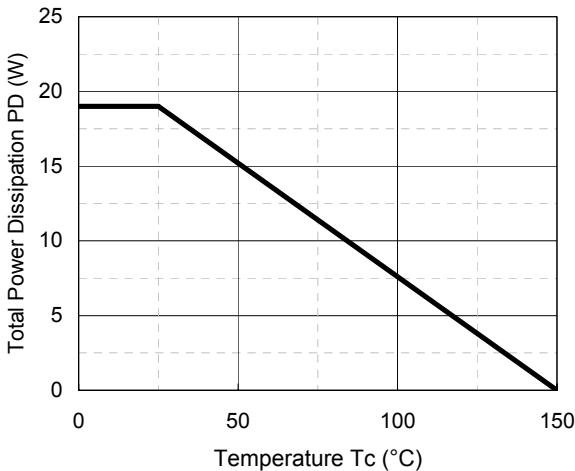
RDS(on) - Ta



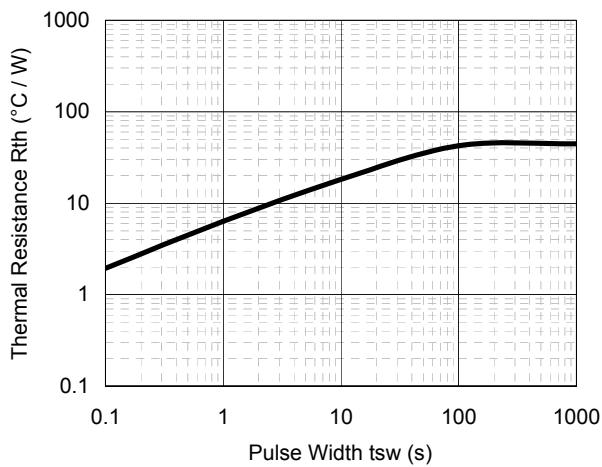
PD - Ta



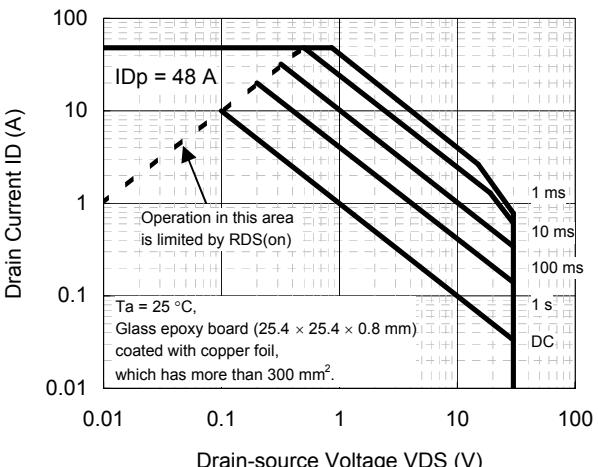
PD - Tc



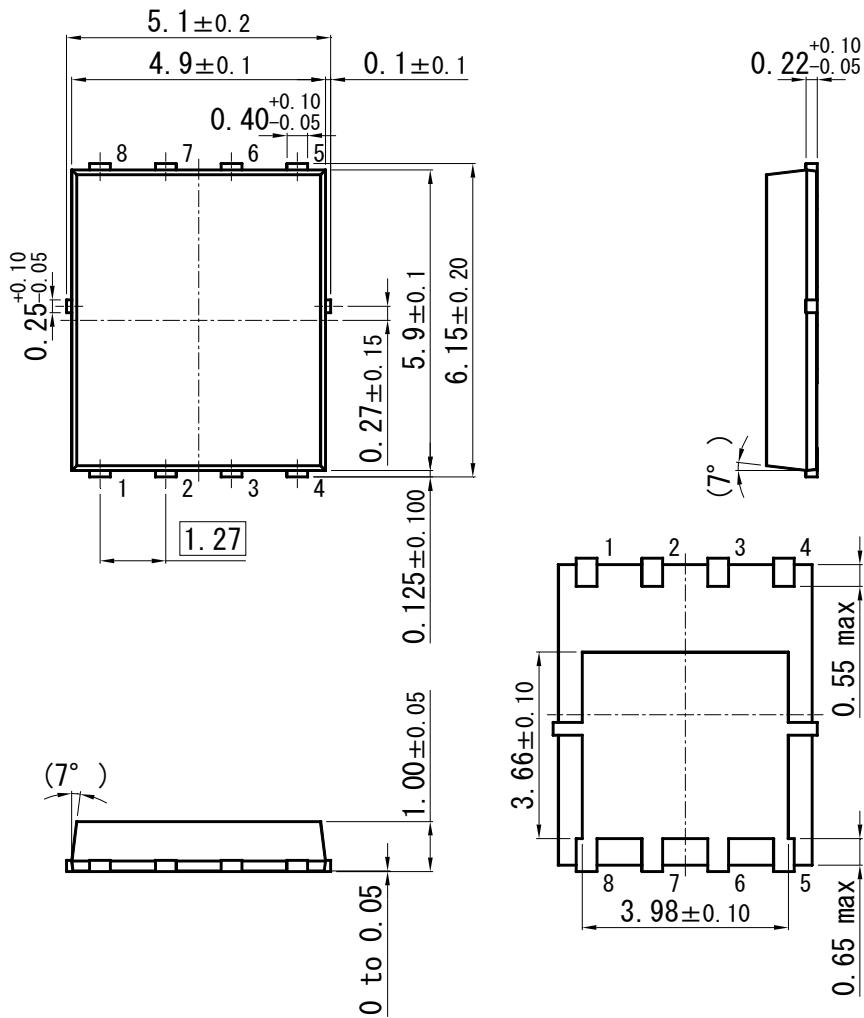
R<sub>th</sub> - tsw



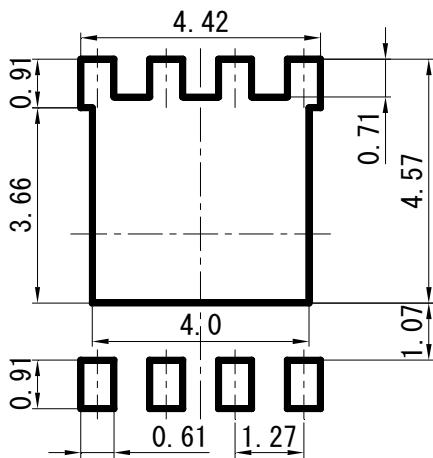
Safe Operating Area



**HSO8-F4-B**



■ Land Pattern (Reference) (Unit : mm)



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